

SEQUENCE LISTING

<110> HYBRIGENICS

<120> SID nucleic acids and polypeptides selected from a pathogenic strain of the hepatitis C virus and applications

<130> B4809A - JAZ

<140> U.S.

<141> 2001-07-27

<150> EP 00402225.7

<151> 2000-08-03

<160> 156

<170> PatentIn Ver. 2.1

<210> 1

<211> 50

~~Q~~<212> PRT~~Q~~<213> Hepatitis C virus~~Q~~<400> 1~~Q~~Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10 15~~Q~~Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
20 25 30~~Q~~Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
35 40 45~~Q~~Pro Leu

50

<210> 2

<211> 35

<212> PRT

<213> Hepatitis C virus

<400> 2

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
1 5 10 15Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala
20 25 30

Gly Cys Ala

35

<210> 3

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 3

Asn	Thr	Asn	Arg	Arg	Pro	Gln	Asp	Val	Lys	Phe	Pro	Gly	Gly	Gly	Gln
1															15

Ile	Val	Gly	Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Leu	Gly
															30

Val	Arg	Ala	Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg
															45

Arg	Gln	Pro	Ile	Pro	Lys	Ala	Arg	Arg	Pro	Glu	Gly	Arg	Thr	Trp	Ala
															60

Gln	Pro	Gly	Tyr	Pro	Trp	Pro	Leu	Tyr	Gly	Asn	Glu	Gly		
														75

<210> 4

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 4

Pro	Ser	Pro	Val	Val	Gly	Thr	Thr	Asp	Arg	Ser	Gly	Ala	Pro	Thr	
1															15

Tyr	Ser	Trp	Gly	Ala	Asn	Asp	Thr	Asp	Val	Phe	Val	Leu	Asn	Asn	Thr
															30

Arg	Pro	Pro	Leu	Gly
				35

<210> 5

<211> 150

<212> PRT

<213> Hepatitis C virus

<400> 5

Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile
1															15

Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu	Arg	Pro	Ser	Gly	Met	Phe	Asp	Ser
															30

Ser	Val	Leu	Cys	Glu	Cys	Tyr	Asp	Ala	Gly	Cys	Ala	Trp	Tyr	Glu	Leu
															45

Thr	Pro	Ala	Glu	Thr	Thr	Val	Arg	Leu	Arg	Ala	Tyr	Met	Asn	Thr	Pro
															60

Gly	Leu	Pro	Val	Cys	Gln	Asp	His	Leu	Glu	Phe	Trp	Glu	Gly	Val	Phe
															80

Thr	Gly	Leu	Thr	His	Ile	Asp	Ala	His	Phe	Leu	Ser	Gln	Thr	Lys	Gln
															95

Ser	Gly	Glu	Asn	Phe	Pro	Tyr	Leu	Val	Ala	Tyr	Gln	Ala	Thr	Val	Cys
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100

105

110

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys
 115 120 125

Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr
 130 135 140

Arg Leu Gly Ala Val Gln
 145 150

<210> 6
 <211> 28
 <212> PRT
 <213> Hepatitis C virus

<400> 6
 Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 1 5 10 15

□ Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val
 □ 20 25

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 □ <210> 7
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 □ <212> PRT
 □ <213> Hepatitis C virus

□ <400> 7
 □ Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro
 □ 1 5 10 15

□ Val Tyr Cys Phe Thr Pro Ser Pro Val Val
 □ 20 25

<210> 8
 <211> 54
 <212> PRT
 <213> Hepatitis C virus

<400> 8
 Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile
 1 5 10 15

Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu
 20 25 30

Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu
 35 40 45

Gln Phe Lys Gln Lys Ala
 50

<210> 9
<211> 40
<212> PRT
<213> Hepatitis C virus

<400> 9
Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr
1 5 10 15
Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu
20 25 30
Pro Gln Asp Ala Val Ser Arg Thr
35 40

<210> 10
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 10
Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr
1 5 10 15
Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
20 25

<210> 11
<211> 27
<212> PRT
<213> Hepatitis C virus

<400> 11
Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro
1 5 10 15
Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
20 25

<210> 12
<211> 42
<212> PRT
<213> Hepatitis C virus

<400> 12
Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn
1 5 10 15
Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg
20 25 30
Leu Ile Val Phe Pro Asp Leu Gly Val Arg
35 40

<210> 13
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 13
Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
1 5 10 15
Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
20 25

<210> 14
<211> 33
<212> PRT
<213> Hepatitis C virus

<400> 14
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
1 5 10 15
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro
20 25 30
Val

<210> 15
<211> 31
<212> PRT
<213> Hepatitis C virus

<400> 15
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn
20 25 30

<210> 16
<211> 77
<212> PRT
<213> Hepatitis C virus

<400> 16
Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser
1 5 10 15
Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala
20 25 30
Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly
35 40 45

Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala
 50 55 60

Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
 65 70 75

<210> 17
 <211> 147
 <212> PRT
 <213> Hepatitis C virus

<400> 17
 Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys
 1 5 10 15

Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr
 20 25 30

Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp
 35 40 45

Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr
 50 55 60

Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
 65 70 75 80

Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
 85 90 95

Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
 100 105 110

Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys
 115 120 125

Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu
 130 135 140

Gly Thr Thr
 145

<210> 18
 <211> 36
 <212> PRT
 <213> Hepatitis C virus

<400> 18
 Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
 1 5 10 15

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
 20 25 30

Cys Glu Val Leu
 35

<210> 19
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 19
Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly
1 5 10 15
Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp
20 25

<210> 20
<211> 45
<212> PRT
<213> Hepatitis C virus

<400> 20
Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg
1 5 10 15
Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe
20 25 30
Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile
35 40 45

<210> 21
<211> 86
<212> PRT
<213> Hepatitis C virus

<400> 21
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
1 5 10 15
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
20 25 30
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
35 40 45
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
50 55 60
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
65 70 75 80
Gly Pro Gly Glu Gly Ala
85

<210> 22
<211> 43

<212> PRT
<213> Hepatitis C virus

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<400> 22
Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
      1           5           .          10           .          15

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
      .          20           25           .          30

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe
      .          35           40

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<210> 23
<211> 63
<212> PRT
<213> Hepatitis C virus

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<400> 23
Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala
      1           5           10          15

Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp
      20          25          30

Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val
      35          40          45

Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly
      50          55          60

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210> 24
211> 29
212> PRT
213> Hepatitis C virus

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<400> 24
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
   1           5           10          15

Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
   20          25

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<210> 25
<211> 76
<212> PRT
<213> Hepatitis C virus

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<400> 25
Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly
      1          5          10          15

His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser
      20          25          30

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Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala
 35 40 45

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile
 50 55 60

Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val
 65 70 75

<210> 26

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 26

Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His
 1 5 10 15

Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu
 20 25 30

Arg Asp Ile Trp Asp
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<210> 27

<211> 47

<212> PRT

<213> Hepatitis C virus

<400> 27

Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly
 1 5 10 15

Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp
 20 25 30

Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr
 35 40 45

<210> 28

<211> 53

<212> PRT

<213> Hepatitis C virus

<400> 28

Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu
 1 5 10 15

Glu Tyr Val Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly
 20 25 30

Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu
 35 40 45

Phe Phe Thr Glu Leu

50

<210> 29
<211> 112
<212> PRT
<213> Hepatitis C virus

<400> 29
Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
1 5 10 15
Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
20 25 30
Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val Ala Tyr Tyr
35 40 45
Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp Val Val Val
50 55 60
Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp Phe Asp Ser
65 70 75 80
Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
85 90 95
Asp Pro Thr Phe Thr Ile Glu Thr Thr Leu Pro Gln Asp Ala Val
100 105 110

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<210> 30
<211> 54
<212> PRT
<213> Hepatitis C virus

<400> 30
Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala
1 5 10 15
Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His
20 25 30
Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val
35 40 45
Thr Ala Ile Leu Ser Ser
50

<210> 31
<211> 102
<212> PRT
<213> Hepatitis C virus

<400> 31

Ala	Ile	Lys	Ser	Leu	Thr	Glu	Arg	Leu	Tyr	Val	Gly	Gly	Pro	Leu	Thr
1				5				10					15		

Asn	Ser	Arg	Gly	Glu	Asn	Cys	Gly	Tyr	Arg	Arg	Cys	Arg	Ala	Ser	Gly
				20				25				30			

Val	Leu	Thr	Thr	Ser	Cys	Gly	Asn	Thr	Leu	Thr	Cys	Tyr	Ile	Lys	Ala
					35			40				45			

Arg	Ala	Ala	Cys	Arg	Ala	Ala	Gly	Leu	Gln	Asp	Cys	Thr	Met	Leu	Val
					50			55			60				

Cys	Gly	Asp	Asp	Asp	Leu	Val	Val	Ile	Cys	Glu	Ser	Ala	Gly	Val	Gln	Glu
					65			70			75			80		

Asp	Ala	Ala	Ser	Leu	Arg	Ala	Phe	Thr	Glu	Ala	Met	Thr	Arg	Tyr	Ser
					85			90				95			

Ala	Pro	Pro	Gly	Asp	Pro										
					100										

<210> 32

<211> 79

<212> PRT

<213> Hepatitis C virus

<400> 32

Leu	Gln	Val	Leu	Asp	Ser	His	Tyr	Gln	Asp	Val	Leu	Lys	Glu	Val	Lys
1				5				10				15			

Ala	Ala	Ala	Ser	Lys	Val	Lys	Ala	Asn	Leu	Leu	Ser	Val	Glu	Glu	Ala
					20			25			30				

Cys	Ser	Leu	Thr	Pro	Pro	His	Ser	Ala	Lys	Ser	Lys	Phe	Gly	Tyr	Gly
					35			40			45				

Ala	Lys	Asp	Val	Arg	Cys	His	Ala	Arg	Lys	Ala	Val	Ala	His	Ile	Asn
					50			55			60				

Ser	Val	Trp	Lys	Asp	Leu	Leu	Glu	Asp	Ser	Val	Thr	Pro	Ile	Asp	
					65			70			75				

<210> 33

<211> 61

<212> PRT

<213> Hepatitis C virus

<400> 33

Thr	Gln	Thr	Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr
1				5				10				15			

Thr	Thr	Leu	Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg
					20			25			30				

Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu
					35			40			45				

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
 50 55 60

<210> 34

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 34

Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala
 1 5 10 15

Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser
 20 25 30

Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys
 35 40 45

Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val
 50 55 60

Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp
 65 70 75

<210> 35

<211> 26

<212> PRT

<213> Hepatitis C virus

<400> 35

Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly
 1 5 10 15

Pro Val Tyr Cys Phe Thr Pro Ser Pro Val
 20 25

<210> 36

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 36

Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys
 1 5 10 15

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
 20 25 30

Cys Gly Pro Val Tyr
 35

<210> 37

<211> 35
<212> PRT
<213> Hepatitis C virus

<400> 37
Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu
1 5 10 15
Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp
20 25 30
Ile Cys Glu
35

<210> 38
<211> 25
<212> PRT
<213> Hepatitis C virus

<400> 38
Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro
1 5 10 15
Cys Ser Gly Ser Trp Leu Arg Asp Ile
20 25

<210> 39
<211> 152
<212> DNA
<213> Hepatitis C virus

<400> 39
cttggccgc cgcaggggcc ctagattggg tttgcgcgcg acgaggaaga cttccgagcg 60
gtcgcaacct cgaggttagac gtcagcctat ccccaaggca cgtcgccccg agggcaggac 120
ctgggcttag cccgggtacc cttggcccct ct 152

<210> 40
<211> 106
<212> DNA
<213> Hepatitis C virus

<400> 40
tggcaggggg aagccaggca tctatacatt ttggcacccg ggggagcgcc cctccggcat 60
gttcgactcg tccgtcctct gtgagtgtca tgacgcggc tttgtct 106

<210> 41
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 41
taacaccaac cgtcgcccac aggacgtcaa gttcccggtt ggccgtcaga tcgttgggtgg 60
agtttacttg ttggccgcga ggggccttag attgggtgtg cgcgcacga ggaagacttc 120
cgagcggctcg caacctcgag gtagacgtca gcttatcccc aaggcacgtc ggcccgagg 180
caggacctgg gctcagcccg ggtaccccttg gccccttat ggcaatgagg gttg 234

<210> 42
<211> 114
<212> DNA
<213> Hepatitis C virus

<400> 42
tcccagcccc gtgggtgggg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
tgcaaatgtat acggatgtct tcgtccctaa caacaccagg ccaccgctgg gcaa 114

<210> 43
<211> 453
<212> DNA
<213> Hepatitis C virus

<400> 43
ctccaggact caacgcccgg gcaggactgg cagggggaaag ccaggcatct atagatttgt 60
ggcacccgggg gagcgccccct ccggcatgtt cgactcggtcc gtcctctgtg agtgctatga 120
cgcgggtgt gcttggatag agtcacgccc cgccgagact acagtttaggc tacgagcgta 180
catgaacacc cccgggcttc ccgtgtgcca ggaccatctt gaattttggg agggcgtctt 240
tacgggcctc actcatatacg atgcccactt tttatcccag acaaagcaga gtggggagaa 300
ctttccttac ctggtagcgt accaagccac cgtgtgcgtt aggctcaag cccctcccc 360
atcgtgggac cagatgtgga agtgtttgtat ccgccttaaa cccaccctcc atggggccaac 420
acccctgcta tacagactgg gcgctgttca gaa 453

<210> 44
<211> 85
<212> DNA
<213> Hepatitis C virus

<400> 44
tcccagcccc gtgggtgggg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
tgcaaatgtat acggatgtct tcgtc 85

<210> 45
<211> 80
<212> DNA
<213> Hepatitis C virus

<400> 45
ccctccaaga ccttggca ttgtgcccgc aaagagcgtg tggggccgg tatattgctt 60
cactcccagc cccgtgggg 80

<210> 46
<211> 165
<212> DNA
<213> Hepatitis C virus

<400> 46
ctgcgtggtc atagtggca ggatcgcttt gtccggaaag ccggcaatta tacctgacag 60
ggaggttctc taccaggagt tcgatgagat gaaagagtgc tctcagcact taccgtacat 120
cgagcaaggg atgatgctcg ctgaggagtt caagcagaag gccct 165

<210> 47
<211> 123

<212> DNA

<213> Hepatitis C virus

<400> 47

cggcgacttc gactctgtga tagactgcaa cacgtgtgtc actcagacag tcgatttcag 60
ccttgaccct acctttacca tttagacaac cacgctcccc caggatgctg tctccaggac 120
tca 123

<210> 48

<211> 87

<212> DNA

<213> Hepatitis C virus

<400> 48

ggagcgcggcc tccggcatgt tcgactcgtc cgtcctctgt gagtgctatg acgcgggctg 60
tgcttggat gagctcacgc ccggcga 87

<210> 49

<211> 84

<212> DNA

2660 <213> Hepatitis C virus

<400> 49

caggggaaag ccaggcatct atagatttgt ggcaccgggg gagcgccctt ccggcatgtt 60
cgactcggtcc gtcctctgtg agtg 84

2661 <210> 50

2662 <211> 128

2663 <212> DNA

2664 <213> Hepatitis C virus

2665 <400> 50

tctgaaagac agtgtaaacac caataagacac taccatcatg gccaagaacg aggtttctg 60
cgttcagcct gagaaggggg gtcgttaagcc agtcgtctc atcgtgttcc ccgacctggg 120
cgtgcgcg 128

2666 <210> 51

2667 <211> 85

2668 <212> DNA

2669 <213> Hepatitis C virus

2670 <400> 51

tcccacccggc agcgtaaga gcaccaaggt cccggctgct tacgcagccc agggctacaa 60
ggtgttggtg ctcaacccct ctgtt 85

2671 <210> 52

2672 <211> 102

2673 <212> DNA

2674 <213> Hepatitis C virus

2675 <400> 52

cgaacgcccc tactgctggc actaccctcc aagaccttgt ggcattgtgc ccgcaaagag 60
cgtgtgtggc ccggtatatt gttcactcc cagccccgtg gt 102

2676 <210> 53

<211> 95
<212> DNA
<213> Hepatitis C virus

<400> 53
tccccagcccc gtgggtggta gaacgaccga caggtcgccgc gcgcctaccc acagctgggg 60
tgcaaatgat acggatgtct tcgtccttaa caaca 95

<210> 54
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 54
ggcgggagct cttgttagcat tcaagatcat gagcggtgag gtcccctcca cggaggacct 60
ggtaatctg ctgcccgcctc tcctctcgcc tggagccctt gtatcggtt tggtctgcgc 120
agcaatactg cgccggcacg ttggcccgaa cgagggggca gtgcaatgga tgaaccggct 180
aatagccttc gcctcccgaa ggaaccatgt ttccccacg cactacgtgc cgga 234

<210> 55
<211> 442
<212> DNA
<213> Hepatitis C virus

<400> 55
tgaggtccag atcgtgtcaa ctgctaccca aacttcctg gcaacgtgca tcaatgggt 60
atgctggact gtctaccacg gggccggaac gaggaccatc gcatcaccca agggtcctgt 120
catccagatg tataccaatg tggaccaaga cttgtggc tggcccgctc ctcaagggttc 180
ccgctcattt acaccctgtt cctgcggctc ctcggacctt tacctggta cgaggcacgc 240
cgatgtcatt cccgtgcgcc ggcgaggtga tagcaggggt agcctgtttt cgcccccggcc 300
catttcctac ttgaaaggct cctcgggggg tccgctgttg tgcccgccgg gacacggcgt 360
gggcctattt agggccgggg tgtgcacccg tggagtggct aaagcggtgg actttatccc 420
tgtggagaac cttagggacaa cc 442

<210> 56
<211> 111
<212> DNA
<213> Hepatitis C virus

<400> 56
tgtaacccag ctccctgaggc gactgcatca gtggataagc tcggagtgtt ccactccatg 60
ctccggttcc tggctaaggg acatctggta ctggatatgc gaggtgtga g 111

<210> 57
<211> 87
<212> DNA
<213> Hepatitis C virus

<400> 57
cgtgtgtggc ccgttatatt gcttcactcc cagccccgtg gtgggtggaa cgaccgacag 60
gtcggggcgcc cctacacctaca gctgggg 87

<210> 58
<211> 137
<212> DNA
<213> Hepatitis C virus

~~P~~ 2
<400> 58

c~~ccgc~~cccttg cgagctt~~gga~~ gacaccgggc ccggagcg~~t~~ c~~cg~~cgctaggc ttctgtccag 60
aggaggcagg/gctgccat~~at~~ gtggcaagta cctcttcaac/tgggcagtaa gaacaaagct 120
caaactcact ccaatag 137

<210> 59

<211> 259

<212> DNA

<213> Hepatitis C virus

<400> 59

tactgcctt~~t~~ gtgggtgctg gcctagctgg cgccgc~~cat~~ ggcagcg~~t~~ gactggggaa 60
ggtcctcg~~t~~ gacattcttg cagggtatgg cgccggcg~~t~~ gcccggagctc tttagcatt 120
caagatcatg agcggtgagg tcccctccac ggaggac~~t~~ g~~t~~caatctgc tgcccgc~~at~~ 180
cctctcg~~c~~c~~t~~ ggagcccttg tagtcgg~~t~~ ggtctgc~~g~~ca gcaatactgc gcccggac~~gt~~ 240
tggccccggc gagggggca 259

<210> 60

<211> 130

<212> DNA

<213> Hepatitis C virus

<400> 60

tggcattgtg cccgcaaaga gcgtgtgtgg cccggatat~~t~~ tgctt~~c~~actc ccagccccgt 60
gg~~t~~gggtgg~~a~~ acgaccgaca ggtcgggcgc gcctac~~t~~ac agctgggg~~t~~g caaatgatac 120
ggatgtcttc 130

<210> 61

<211> 191

<212> DNA

<213> Hepatitis C virus

<400> 61

ggtcctcg~~t~~ gacattcttg cagggtatgg cgccggcg~~t~~ gcccggagctc tttagcatt 60
caagatcatg agcggtgagg tcccctccac ggaggac~~t~~ g~~t~~caatctgc tgcccgc~~at~~ 120
cctctcg~~c~~c~~t~~ ggagcccttg tagtcgg~~t~~ ggtctgc~~g~~ca gcaatactgc gcccggac~~gt~~ 180
tggccccggc g 191

<210> 62

<211> 89

<212> DNA

<213> Hepatitis C virus

<400> 62

cgaacgcccc tactgctggc actaccctcc aagac~~c~~ttgt ggcattgtgc ccgcaaagag 60
cgtgtgtggc cc~~g~~gttat~~a~~t gctt~~c~~actc 89

<210> 63

<211> 230

<212> DNA

<213> Hepatitis C virus

<400> 63

caggcgccac tggacgacgc aagactgcaa ttgttctatc tatcccg~~g~~cc atataaac~~gg~~g 60
tc~~a~~tgc~~g~~at~~g~~ gcatggata t~~g~~at~~g~~at~~g~~aa ctgg~~t~~ccct acggcag~~g~~t tgg~~t~~ggtagc 120

tcagctgctc cgatatccac aagccatcat ggacatgatc gctggtgctc actggggagt 180
 cctggcggtc atagcgtatt tctccatggt ggggaactgg gcgaagggtcc 230

<210> 64
 <211> 113
 <212> DNA
 <213> Hepatitis C virus

<400> 64
 tgccatactc agcagcctca ctgtaaccca gctcctgagg cgactgcattc agtggataag 60
 ctcggagtgt accactccat gctccggttc ctggctaagg gacatctggg act 113

<210> 65
 <211> 142
 <212> DNA
 <213> Hepatitis C virus

<400> 65
 tgtctccagg actcaacgcc ggggcaggac tggcaggggg aagccaggca tctatagatt 60
 tgtggcaccc ggggagcgc cctccggcat gttcgactcg tccgtcctct gtgagtgcta 120
 tgacgcgggc tgtgcttggt at 142

<210> 66
 <211> 162
 <212> DNA
 <213> Hepatitis C virus

<400> 66
 ctttcctgcg ccgaactata agttcgcgct gtggaggggtg tctgcagagg aatacgtgga 60
 gataaggcgg gttggggact tccactacgt atcgggtatg actactgaca atcttaatg 120
 cccgtgccag atccccatcgc ccgaatttt cacagaattt ga 162

<210> 67
 <211> 337
 <212> DNA
 <213> Hepatitis C virus

<400> 67
 cggagagatc cccttttacg gcaaggctat ccccctcgag gtatcaagg gggaaagaca 60
 tctcatcttc tgccactcaa agaagaagtg cgacgagtc gcccgcgaagc tggtcgcatt 120
 gggcatcaat gccgtggct actaccgcgg tcttgcacgtg tctgtcatcc cgaccagcgg 180
 cgatgtgtc gtcgtgtcga ccgatgtct catgactggc ttaccggcg acttcgactc 240
 tgtgatagac tcaacacgt gtgtcactca gacagtcgtt ttcagccttg accctacctt 300
 taccattttag acaaccacgc tcccccagga tgctgtc 337

<210> 68
 <211> 163
 <212> DNA
 <213> Hepatitis C virus

<400> 68
 ggtctgcgca gcaatactgc gcccgcacgt tggcccgggc gagggggcag tgcaatggat 60
 gaaccggcta atagccttcg cctcccgaaa gaaccatgtt tcccccacgc actacgtgcc 120
 ggagagcgtt gcagccgccc gcttcactgc cataactcagc agc 163

<210> 69
<211> 309
<212> DNA
<213> Hepatitis C virus

<400> 69
ggccatcaag tccctcactg agagagctta tgttggggc cctcttacca attcaagggg 60
ggaaaactgc ggctaccgca ggtgccgcgc gagcggcgta ctgacaacta gctgtggtaa 120
caccctcact tgctacatca aggcccggc agcctgtcga gccgcagggc tccaggactg 180
caccatgctc gtgtgtggcg acgacttagt cgttatctgt gaaagtgcgg gggtcagga 240
ggacgcggcg agcctgagag cttcacgga ggctatgacc aggtactccg ccccccccg 300
ggacccccc 309

<210> 70
<211> 240
<212> DNA
<213> Hepatitis C virus

<400> 70
actgcaagtt ctggacagcc attaccagga cgtgctcaag gaggtcaaag cagcggcg 60
aaaagtgaag gctaacttgc tatccgtaga ggaagctgc agcctgacgc ccccacattc 120
agccaaatcc aagtttggct atggggcaaa agacgtccgt tgccatgcca gaaaggccgt 180
agcccacatc aactccgtgt ggaaagacct tctggaagac agtgaacac caatagacac 240

<210> 71
<211> 184
<212> DNA
<213> Hepatitis C virus

<400> 71
cactcagaca gtcgatttca gccttgaccc taccttacc attgagacaa ccacgctccc 60
ccaggatgct gtcctcagga ctcaacgccc gggcaggact ggcaaggggg agccaggcat 120
ctatagattt gtggcaccgg gggagcgc ctcggcatg ttgcactcgt ccgtcctctg 180
tgag 184

<210> 72
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 72
agttctggac agccattacc aggacgtgct caaggaggc aaagcagcgg cgtcaaaagt 60
gaaggctaac ttgctatccg tagaggaagc ttgcagcctg acgccccac attcagccaa 120
atccaagttt ggctatgggg caaaagacgt ccgttgccat gccagaaagg ccgtagccca 180
catcaactcc gtgtggaaag acttctgga agacagtgt aaccaatac acac 234

<210> 73
<211> 80
<212> DNA
<213> Hepatitis C virus

<400> 73
ctaccctcca agactttgtg gcattgtgcc cgcaaagagc gtgtgtggcc cggttatattg 60
tttactccc agccccgtgg 80

<210> 74

<211> 112
<212> DNA
<213> Hepatitis C virus

<400> 74
tcctatcat tatgccaacg gaagcggcct cgacgaacgc ccctactgct ggcactaccc 60
tccaagacct tgtggcattg tgcccgaaa gagcgtgtgt ggcccggtat at 112

<210> 75
<211> 107
<212> DNA
<213> Hepatitis C virus

<400> 75
caactgtaacc cagctcctga ggcgactgca tcagtggata agctcggagt gtaccactcc 60
atgctccggc ttccctggctaa gggacatctg ggactggata tgcgagg 107

<210> 76
<211> 78
<212> DNA
<213> Hepatitis C virus

<400> 76
gctcctgagg cgactgcattc agtggataag ctcggagtgt accactccat gctccggttc 60
ctggctaagg gacatctg 78

<210> 77
<211> 103
<212> PRT
<213> Hepatitis C virus

<400> 77
Ala Cys Glu Cys Pro Gly Arg Ser Arg Arg Pro Cys Thr Met Ser Thr
1 5 10 15

Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro
20 25 30

Gln Asp Val Lys Phe Pro Gly Gly Gln Ile Val Gly Gly Val Tyr
35 40 45

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
50 55 60

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
65 70 75 80

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
85 90 95

Pro Leu Tyr Gly Asn Glu Gly
100

<210> 78
<211> 113
<212> PRT

<213> Hepatitis C virus

<400> 78

Met	Ser	Thr	Asn	Pro	Lys	Pro	Gln	Arg	Lys	Thr	Lys	Arg	Asn	Thr	Asn
1				5					10					15	

Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30

Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35 40 45

Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60

Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly
65 70 75 80

Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
85 90 95

Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100 105 110

Arg

<210> 79

<211> 114

<212> PRT

<213> Hepatitis C virus

<400> 79

Ala Ile L

1

Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg Asp
20 25 . 30

Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val
35 40 45

Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly
50 55 60

Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg His
 65 70 75 80

Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr
85 90 95

Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Ala
100 105 110

Ala Leu

<210> 80
<211> 91
<212> PRT
<213> Hepatitis C virus

<400> 80
Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly Arg Thr
1 5 10 15
Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln Asn Ile
20 25 30
Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr Ala Leu
35 40 45
Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu Phe Tyr
50 55 60
Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys
65 70 75 80
Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly
85 90

<210> 81
<211> 176
<212> PRT
<213> Hepatitis C virus

<400> 81
Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro
1 5 10 15
Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys
20 25 30
Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val
35 40 45
Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn
50 55 60
Asp Thr Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn
65 70 75 80
Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys
85 90 95
Gly Ala Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu
100 105 110
Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ser Arg
115 120 125
Cys Gly Ser Gly Pro Trp Ile Thr Pro Arg Cys Met Val Asp Tyr Pro
130 135 140
Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys
145 150 155 160

Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys
 165 170 175

<210> 82
 <211> 96
 <212> PRT
 <213> Hepatitis C virus

<400> 82
 Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
 1 5 10 15

Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr
 20 25 30

Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn Asp Thr
 35 40 45

Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe
 50 55 60

Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala
 65 70 75 80

Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu Cys Pro
 85 90 95

<210> 83
 <211> 278
 <212> PRT
 <213> Hepatitis C virus

<400> 83
 Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg
 1 5 10 15

Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly
 20 25 30

Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly
 35 40 45

Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln
 50 55 60

Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu
 65 70 75 80

Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly
 85 90 95

Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr
 100 105 110
 Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg
 115 120 125
 Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr
 130 135 140
 Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly
 145 150 155 160
 Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly
 165 170 175
 Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala
 180 185 190
 Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val
 195 200 205
 Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser
 210 215 220
 Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala
 225 230 235 240
 Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
 245 250 255
 Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu
 260 265 270
 Gly Phe Gly Ala Tyr Met
 275

<210> 84
 <211> 158
 <212> PRT
 <213> Hepatitis C virus

<400> 84
 Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile
 1 5 10 15
 Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly
 20 25 30
 His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
 35 40 45
 Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg
 50 55 60
 Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser
 65 70 75 80
 Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr

85

90

95

Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu		
100	105	110
Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys		
115	120	125
Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr		
130	135	140
Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu		
145	150	155

<210> 85
<211> 263
<212> PRT
<213> Hepatitis C virus

<400> 85			
Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys			
1	5	10	15
Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly			
20	25	30	
Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp			
35	40	45	
Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe			
50	55	60	
Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala			
65	70	75	80
His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala			
85	90	95	
Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val			
100	105	110	
Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val			
115	120	125	
Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro			
130	135	140	
Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser			
145	150	155	160
Gly Gly Ala Tyr Asp Ile Ile Cys Asp Glu Cys His Ser Thr Asp			
165	170	175	
Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr			
180	185	190	
Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser			
195	200	205	

Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr
 210 215 220

Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
 225 230 235 240

Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
 245 250 255

Leu Ala Ala Lys Leu Val Ala
 260

<210> 86
 <211> 194
 <212> PRT
 <213> Hepatitis C virus

<400> 86

Asp	Asn	Ser	Ser	Pro	Pro	Ala	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His
1				5				10					15		

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala
 20 25 30

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala
 35 40 45

Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp
 50 55 60

Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile
 65 70 75 80

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly
 85 90 95

Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala
 100 105 110

Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala
 115 120 125

Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val
 130 135 140

Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly
 145 150 155 160

Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly
 165 170 175

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu
 180 185 190

Ala Ala

<210> 87
<211> 205
<212> PRT
<213> Hepatitis C virus

<400> 87
 Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys
 1 5 10 15

 Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr
 20 . 25 30

 Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala
 35 40 45

 Thr Ala Thr Pro Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu
 50 55 60

 Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala
 65 70 75 80

 Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His
 85 90 95

 Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly
 100 105 110

 Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro
 115 120 125

 Thr Ser Gly Asp Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly
 130 135 140

 Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr
 145 150 155 160

 Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr
 165 170 175

 Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
 180 185 190

 Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro
 195 200 205

<210> 88
<211> 186
<212> PRT
<213> Hepatitis C virus

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<400> 88
Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln
      1           5           10          15

Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro
      20          25          30

Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu
      35          40          45

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Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu
 50 55 60

Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys
 65 70 75 80

Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val
 85 90 95

Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp
 100 105 110

Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp
 115 120 125

Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp
 130 135 140

Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln
 145 150 155 160

Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys
 165 170 175

Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly
 180 185

<210> 89

<211> 158

<212> PRT

<213> Hepatitis C virus

<400> 89

Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
 1 5 10 15

Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val
 20 25 30

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
 35 40 45

Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
 50 55 60

Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
 65 70 75 80

Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
 85 90 95

Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
 100 105 110

Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
 115 120 125

Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

130

135

140

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp
 145 150 155

<210> 90
 <211> 129
 <212> PRT
 <213> Hepatitis C virus

<400> 90
 Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser
 1 5 10 15

Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr
 20 25 30

Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly
 35 40 45

Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr
 50 55 60

Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser
 65 70 75 80

Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala
 85 90 95

Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu
 100 105 110

Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg
 115 120 125

Leu

<210> 91
 <211> 51
 <212> PRT
 <213> Hepatitis C virus

<400> 91
 Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala
 1 5 10 15

Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu
 20 25 30

Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu
 35 40 45

Phe Asp Glu
 50

<210> 92
<211> 18
<212> PRT
<213> Hepatitis C virus

<400> 92
Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val
1 5 10 15
Gly Arg

<210> 93
<211> 208
<212> PRT
<213> Hepatitis C virus

<400> 93
Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu
1 5 10 15
Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly
20 25 30
Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly
35 40 45
Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
50 55 60
Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu
65 70 75 80
Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
85 90 95
Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
100 105 110
His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
115 120 125
Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
130 135 140
Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr
145 150 155 160
Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
165 170 175
Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
180 185 190
Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met
195 200 205

<210> 94
<211> 207
<212> PRT
<213> Hepatitis C virus

<400> 94

Thr	Ala	Phe	Val	Gly	Ala	Gly	Leu	Ala	Gly	Ala	Ala	Ile	Gly	Ser	Val
1			5				10					15			

Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly

20			25				30								
----	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro

35			40				45								
----	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly

50			55				60								
----	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val

65			70				75					80			
----	--	--	----	--	--	--	----	--	--	--	--	----	--	--	--

Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe

85			90				95								
----	--	--	----	--	--	--	----	--	--	--	--	--	--	--	--

Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser

100			105				110								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr

115			120				125								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr

130			135				140								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu

145			150				155					160			
-----	--	--	-----	--	--	--	-----	--	--	--	--	-----	--	--	--

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln

165			170				175								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val

180			185				190								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala

195			200				205								
-----	--	--	-----	--	--	--	-----	--	--	--	--	--	--	--	--

<210> 95
<211> 225
<212> PRT
<213> Hepatitis C virus

<400> 95

Leu	Val	Asp	Ile	Leu	Ala	Gly	Tyr	Gly	Ala	Gly	Val	Ala	Gly	Ala	Leu
1				5			10				15				

Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu

20

25

30

Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly
 35 40 45

Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly
 50 55 60

Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn
 65 70 75 80

His Val Ser Pro Thr His Tyr Val Pro Glu Ser Asp Ala Ala Arg
 85 90 95

Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg
 100 105 110

Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser
 115 120 125

Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe
 130 135 140

Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro
 145 150 155 160

Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly
 165 170 175

Ile Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val
 180 185 190

Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met
 195 200 205

Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr
 210 215 220

Pro
 225

<210> 96

<211> 145

<212> PRT

<213> Hepatitis C virus

<400> 96

Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1 5 10 15

Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 20 25 30

Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 35 40 45

Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 50 55 60

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 65 70 75 80

His Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu
 85 90 95

Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
 100 105 110

Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 115 120 125

Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 130 135 140

Ala
 145

<210> 97

<211> 54

<212> PRT

Q <213> Hepatitis C virus

<400> 97

Q Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
 1 5 10 15

E Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
 20 25 30

E Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 35 40 45

D Asp Ala Ala Ala Arg Val
 50

<210> 98

<211> 165

<212> PRT

<213> Hepatitis C virus

<400> 98

A Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 1 5 10 15

A Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
 20 25 30

Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
 35 40 45

Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
 50 55 60

Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
 65 70 75 80

Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val
 85 90 95

Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala Glu
 100 105 110

Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro Arg
 115 120 125

Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr
 130 135 140

Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu
 145 150 155 160

Trp Arg Val Ser Ala
 165

<210> 99

<211> 308

<212> PRT

<213> Hepatitis C virus

<400> 99

Tyr Val Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser
 1 5 10 15

Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
 20 25 30

Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
 35 40 45

Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
 50 55 60

Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
 65 70 75 80

Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
 85 90 95

His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
 100 105 110

Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
 115 120 125

Ile Asn Ala Tyr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
 130 135 140

Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
 145 150 155 160

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 165 170 175

Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 180 185 190

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 195 200 205

Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 210 215 220

Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 225 230 235 240

Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 245 250 255

Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln
 260 265 270

Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser
 275 280 285

Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met
 290 295 300

Gly Gly Asn Ile

305

~~H~~<210> 100

~~H~~<211> 283

~~H~~<212> PRT

~~H~~<213> Hepatitis C virus

~~H~~<400> 100

~~H~~Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp
 1 5 10 15

~~H~~Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp
 20 25 30

~~H~~Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu
 35 40 45

Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys
 50 55 60

Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr
 65 70 75 80

Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr
 85 90 95

Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr
 100 105 110

Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala
 115 120 125

Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val
 130 135 140

Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr

145

150

155

160

Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr
 165 170 175

Glu Leu Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro
 180 185 190

Leu Leu Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro
 195 200 205

Val Gly Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu
 210 215 220

Thr Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly
 225 230 235 240

Arg Arg Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ala
 245 250 255

Ser Gln Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His
 260 265 270

Asp Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn
 275 280

HCV Hepatitis C virus

<210> 101

<211> 249

<212> PRT

<213> Hepatitis C virus

<400> 101

Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
 1 5 10 15

Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
 20 25 30

Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
 35 40 45

Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
 50 55 60

Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
 65 70 75 80

His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
 85 90 95

Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
 100 105 110

Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
 115 120 125

Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
 130 135 140

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 145 150 155 160
 Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 165 170 175
 Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 180 185 190
 Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 195 200 205
 Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 210 215 220
 Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 225 230 235 240
 Leu Ala Arg Gly Ser Pro Pro Ser Met
 245

H<210> 102
H<211> 85
H<212> PRT
H<213> Hepatitis C virus
H<400> 102
HThr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe
H 1 5 10 15
H# Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile
H 20 25 30
HMet His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys
H 35 40 45
HAsn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp
H 50 55 60
 Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro
 65 70 75 80
 Leu Pro Ala Pro Asn
 85

<210> 103
 <211> 94
 <212> PRT
 <213> Hepatitis C virus
 <400> 103
 Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro
 1 5 10 15
 Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr
 20 25 30

Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn Tyr Lys Phe Ala
 35 40 45

Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile Arg Arg Val Gly
 50 55 60

Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn Leu Lys Cys Pro
 65 70 75 80

Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu Asp Gly
 85 90

<210> 104

<211> 75

<212> PRT

<213> Hepatitis C virus

<400> 104

Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met Gly Gly Asn Ile Thr
 1 5 10 15

Arg Val Glu Ser Glu Asn Lys Val Val Ile Leu Asp Ser Phe Asp Pro
 20 25 30

Leu Val Ala Glu Glu Asp Glu Arg Glu Val Ser Val Pro Ala Glu Ile
 35 40 45

Leu Arg Lys Ser Arg Arg Phe Ala Arg Ala Leu Pro Val Trp Ala Arg
 50 55 60

Pro Asp Tyr Asn Pro Pro Leu Val Glu Thr Trp
 65 70 75

<210> 105

<211> 90

<212> PRT

<213> Hepatitis C virus

<400> 105

His Gly Cys Pro Leu Pro Pro Pro Arg Ser Pro Pro Val Pro Pro Pro
 1 5 10 15

Arg Lys Lys Arg Thr Val Val Leu Thr Glu Ser Thr Leu Ser Thr Ala
 20 25 30

Leu Ala Glu Leu Ala Thr Lys Ser Phe Gly Ser Ser Ser Thr Ser Gly
 35 40 45

Ile Thr Gly Asp Asn Thr Thr Ser Ser Glu Pro Ala Pro Ser Gly
 50 55 60

Cys Pro Pro Asp Ser Asp Val Glu Ser Tyr Ser Ser Met Pro Pro Leu
 65 70 75 80

Glu Gly Glu Pro Gly Asp Pro Asp Leu Ser
 85 90

<210> 106
<211> 137
<212> PRT
<213> Hepatitis C virus

<400> 106
Ser Trp Thr Gly Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys
1 5 10 15

Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu
20 25 30

Val Tyr Ser Thr Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val
35 40 45

Thr Phe Asp Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu
50 55 60

Lys Glu Val Lys Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser
65 70 75 80

~~Q~~ Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys
~~Q~~ 85 90 95

~~Q~~ Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val
~~Q~~ 100 105 110

~~W~~ Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr
~~W~~ 115 120 125

~~Q~~ Pro Ile Asp Thr Thr Ile Met Ala Lys
~~Q~~ 130 135

~~Q~~ <210> 107

~~Q~~ <211> 300

~~H~~ <212> PRT

<213> Hepatitis C virus

<400> 107
Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His
1 5 10 15

Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His
20 25 30

Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu
35 40 45

Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu
50 55 60

Val Phe Cys Val Gln Pro Glu Lys Gly Arg Lys Pro Ala Arg Leu
65 70 75 80

Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu
85 90 95

Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser Ser Tyr
 100 105 110

Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val Gln Ala
 115 120 125

Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys
 130 135 140

Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile
 145 150 155 160

Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile Lys Ser
 165 170 175

Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser Arg Gly
 180 185 190

Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr
 195 200 205

Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala Ala Cys
 210 215 220

~~D~~ Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp
~~D~~ 225 230 235 240

~~N~~ Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser
~~N~~ 245 250 255

~~S~~ Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly
~~S~~ 260 265 270

~~S~~ Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser
~~S~~ 275 280 285

~~S~~ Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys
~~S~~ 290 295 300

~~H~~

<210> 108

<211> 199

<212> PRT

<213> Hepatitis C virus

<400> 108

Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe
 1 5 10 15

Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala
 20 25 30

His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro
 35 40 45

Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro
 50 55 60

Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu
 65 70 75 80

Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys
 85 90 95

Leu Pro Leu Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro
 100 105 110

Gly Gln Arg Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr
 115 120 125

Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr
 130 135 140

Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu
 145 150 155 160

Asp Pro Gln Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr
 165 170 175

Val Gly Gly Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg
 180 185 190

Arg Cys Arg Ala Ser Gly Val
 195

~~H~~<210> 109

~~G~~<211> 260

~~C~~<212> PRT

~~A~~<213> Hepatitis C virus

~~E~~<400> 109

~~D~~Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys
 1 5 10 15

~~N~~Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Arg Lys Pro Ala
 20 25 30

~~F~~Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met
 35 40 45

Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser
 50 55 60

Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val
 65 70 75 80

Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr
 85 90 95

Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu
 100 105 110

Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile
 115 120 125

Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser
 130 135 140

Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu

145	150	155	160
Thr Thr Ser Cys Gly Asn Thr Leu Thr	Cys Tyr Ile Lys Ala Arg Ala		
165	170	175	
Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly			
180	185	190	
Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala			
195	200	205	
Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro			
210	215	220	
Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser			
225	230	235	240
Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val			
245	250	255	
Tyr Tyr Leu Thr			
260			

<210> 110
 <211> 127
 <212> PRT
 <213> Hepatitis C virus

<400> 110			
Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg			
1	5	10	15
Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro			
20	25	30	
Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn			
35	40	45	
Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr			
50	55	60	
Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg			
65	70	75	80
His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro			
85	90	95	
Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu			
100	105	110	
Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr			
115	120	125	

<210> 111
 <211> 89
 <212> PRT
 <213> Hepatitis C virus

<400> 111
 Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
 1 5 10 15
 Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
 20 25 30
 His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
 35 40 45
 Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
 50 55 60
 Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr Gly
 65 70 75 80
 Ala Cys Tyr Ser Ile Glu Pro Leu Asp
 85

<210> 112
<211> 73
<212> PRT
<213> Hepatitis C virus

<400> 112
Leu His Gly Leu Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu
1 5 10 15

Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly Val Pro Pro Leu
20 25 30

Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser
35 40 45

Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe Asn Trp Ala
50 55 60

Val Arg Thr Lys Leu Lys Leu Thr Pro
65 70

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<210> 113
<211> 63
<212> PRT
<213> Hepatitis C virus

<400> 113
Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly
   1           5           10          15

Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala
   20          25          30

Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu
   35          40          45

Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Ala

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50

55

60

<210> 114
 <211> 310
 <212> DNA
 <213> Hepatitis C virus

<400> 114
 tgcttcgcag tgccccggga ggtctcgtag accgtgcacc atgagcacga atcctaaacc 60
 tcaaagaaaa accaaacgta acaccaaccg tcgcccacag gacgtcaagt tcccggtgg 120
 cggtcagatc gttgggtggag ttacttggt gccgcgcagg ggccttagat tgggtgtcg 180
 cgcgacgagg aagacttccg agcggtcgca acctcgaggt agacgtcagc ctatccccaa 240
 ggcacgtcgg cccgagggca ggacctgggc tcagccccgg tacccttggc ccctctatgg 300
 caatgagggt 310

<210> 115
 <211> 339
 <212> DNA
 <213> Hepatitis C virus

<400> 115
 atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg tcgcccacag 60
 gacgtcaagt tcccggtgg cggtcagatc gttgggtggag ttacttggt gccgcgcagg 120
 ggccttagat tgggtgtcg cgcgacgagg aagacttccg agcggtcgca acctcgaggt 180
 gagacgtcagc ctatccccaa ggcacgtcgg cccgagggca ggacctgggc tcagccccgg 240
 tacccttggc ccctctatgg caatgagggt tgcgggtggg cggatggct cctgtctccc 300
 cgtggctctc ggcttagctg gggccccaca gaccccccgg 339

<210> 116
 <211> 345
 <212> DNA
 <213> Hepatitis C virus

<400> 116
 tgccatcctg cacactccgg ggtgtgtccc ttgcgttcgc gagggtaacg cctcgaggtg 60
 ttgggtggcg gtgacccca cggtgccac cagggacggc aaactcccc caacgcagct 120
 tcgacgtcat atcgatctgc ttgtcggag cgccaccctc tgctcgccc tctacgtggg 180
 ggacctgtgc gggctgtct ttcttggtgg tcaactgttt accttctctc ccaggcgcca 240
 ctggacgacg caagactgca attgttctat ctatccccgg catataacgg gtcatcgcat 300
 gcatggat atgatgtatga actggcccc tacggcagcg ttgtt 345

<210> 117
 <211> 276
 <212> DNA
 <213> Hepatitis C virus

<400> 117
 cggcgtcgac gcggaaaccc acgtcacccgg gggaaatgcc ggccgcacca cggctggct 60
 tgggtgtctc ctacaccag gcggcaagca gaacatccaa ctgatcaaca ccaacggcag 120
 ttggcacatc aatagcacgg cttgaattt caatgaaagc cttAACACCG gctggtagc 180
 agggctcttc tatcaacaca aattcaactc ttcaaggctgt cctgagaggt tggccagctg 240
 ccgacgcctt accgatttt cccaggcgtg gggtcc 276

<210> 118
 <211> 531

<212> DNA

<213> Hepatitis C virus

<400> 118

ctggggtcct atcagttatg ccaacggaag cggcctcgac gaacgcccct actgctggca 60
 ctaccctcca agaccttgcg gcattgtgcc cgcaaagagc gtgtgtggcc cggtatattg 120
 cttcaactccc agccccgtgg tgggtggaaac gaccgacagg tcgggcgcgc ctacctacag 180
 ctggggtgca aatgatacgg atgtcttcgt ccttaacaac accaggccac cgctggcaa 240
 ttggttcgt tgcacacttgg tgaactcaac tggattcacc aaagtgtgcg gagcggccccc 300
 ttgtgtcatc ggaggggtgg gcaacaacac cttgctctgc cccactgatt gcttccgcaa 360
 acatccggaa gcacacatact ctcggtgcgg ctccggtccc tggattacac ccaggtgcat 420
 ggtcgactac ccgtataggc tttggcacta tccttgcattt atcaattaca ccattttcaa 480
 agtcagatg tacgtggag gggtcgagca caggctggaa gcggcctgca a 531

<210> 119

<211> 289

<212> DNA

<213> Hepatitis C virus

<400> 119

ctggcactac cctccaagac cttgtggcat tggcccgca aagagcgtgt gtggcccggt 60
 atattgttc actcccagcc ccgtgggtt gggAACGACC gacaggtcgg gcgcgcctac 120
 Octacagctgg ggtgcaaatg atacggatgt cttcgtcctt aacaacacca ggccaccgct 180
 Gggcaattgg ttcgggtgtt cctggatgaa ctcaactgaa ttcaccaaaag tgcgggagc 240
 Gcccccttgt gtcatcgag ggggtggcaa caacacctt ctctgcctt 289

<210> 120

<211> 836

<212> DNA

<213> Hepatitis C virus

<400> 120

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 Ggacaaaaacc aagtggaggg tgaggtccag atcgtgtcaa ctgttaccca aaccccttctg 240
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 agectgtttt cggccggcc catttcttac ttgaaaggct cctcggggggg tccgctgttg 540
 tgccccggc gacacggccgt gggcttattt agggccggg tggcaccctg tggagtggt 600
 aaagcggtgg actttatccc tgggagaac ctgggacaa ccatgagatc cccgtgtt 660
 acggacaact cctctccacc agcagtgcgg cagagcttcc aggtggccca cctgcattgt 720
 cccacccggca gggtaagag caccaaggc cccgtgcgt acgcagccca gggctacaag 780
 gtgttggtgc tcaaccccttc tggcgttca acgctgggtt ttggcgttta catgtc 836

<210> 121

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 121

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 cgcgggtgtgc acccggtggag tggctaaagc ggtggacttt atccctgtgg agaacctagg 180
 gacaaccatg agatccccgg tggcgttgc caacttctt ccaccagcag tgccccagag 240
 cttccaggtt gcccacctgc atgctccac cggcagcggt aagagcaca aaggtccggc 300

tgcgtacgca gcccaggcgtt acaagggtgtt ggtgctcaac ccctctgttg ctgcaacgct 360
 gggcttttgtt gcttacatgtt ccaaggccca tggggttgtat cctaataatca ggaccggggtt 420
 gagaacaattt accactggca gccccatcac gtactccacc tacggcaagt tcctt 475

<210> 122
 <211> 790
 <212> DNA
 <213> Hepatitis C virus

<400> 122
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 ccgtggagtgt gctaaagccg tggactttat ccctgtggag aaccttagggaa caaccatgag 180
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 cactggcagc cccatcacgt actccaccta cggcaagttt cttggccgacg ggggtgttc 480
 aggaggtgt tatgacataa taatttgtga cgagtggccac tccacggatg ccacatccat 540
 cttggggcatc ggcactgtcc ttgaccaagc agagactgctg gggggcggagac tgggtgtgtc 600
 cgccactgctt accccctccgg gtcctgtcac tttgtcccat cctaacatcg aggaggttgc 660
 tctgtccacc accggagaga tcccccttta cggcaaggctt atccccctcg aggtgatcaa 720
 ggggggaaga catctcatct tctgccactc aaagaagaag tgcgacgagc tcgcccgcgaa 780
 gctggcgtca 790

<210> 123
 <211> 583
 <212> DNA
 <213> Hepatitis C virus

<400> 123
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 caccggcagc ggtaagagca ccaagggtccc ggctgcgtac gcagcccgagg gctacaagg 120
 gttgggtgtc aaccctctg ttgtgcac gctggggctt ggtgcttaca tgtccaaggc 180
 ccatagggtt gatcctaata tcagggccgg ggtgagaaca attaccactg gcagccccat 240
 cacgtactcc acctacggca agtttcttgc cgacgggggg tgctcaggag gtgcttatga 300
 cataataattt tttgtacgggtt gccactccac ggatgcccaca tccatcttgg gcatcgccac 360
 tgccttgac caagcagaga ctggggggc gagactgggtt gtgctcgcca ctgcttaccc 420
 tccgggtcc gtcactgtgtt cccatcttta catcgaggag gttgtctgtt ccaccaccgg 480
 agagatcccc ttttacggca aggctatccc cctcgagggtt atcaagggggg gaagacatct 540
 catcttctgc cactcaaaga agaagtgcga cgagctcgcc gcg 583

<210> 124
 <211> 617
 <212> DNA
 <213> Hepatitis C virus

<400> 124
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 ctccacggat gcccacatcca tcttggcat cggcactgtc cttgaccaag cagagactgc 120
 gggggccaga ctgggttgtc tcggccactgc taccctcccg ggctccgtca ctgtgtccca 180
 tccttaacatc gaggagggtt ctctgtccac caccggagag atccccctttt acggcaaggc 240
 tatccccctc gagggtatca aaaaaaaaaa acatctcatc ttctgccact caaagaagaa 300
 gtgcgacgag ctgcggccgca agctgggtcgc attgggcacatc aatggccgtgg cctactaccg 360
 cggctctgac gtgtctgtca tcccgaccag cggcgatgtt gtcgtctgtt cgaccgatgc 420
 tctcatgact ggctttaccg gcgacttcga ctctgtata gactgcaaca cgtgtgtcac 480
 tcagacagtc gatggcggcc ttgacccatc ttaccatt gagacaacca cgctccccca 540
 ggtgtctgtc tccaggactc aacggccgggg caggactggc agggggaaagc caggcatcta 600

tagatttgtg gcaccgg

617

<210> 125
<211> 559
<212> DNA
<213> Hepatitis C virus

<400> 125
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ggggcgaga ctgggtgtc tcgcaactgc taccctccg ggctccgtca ctgtgtccca 120
tcctaacatc gaggaggtt ctctgtccac cacccggagag atccccttt acggcaaggc 180
tatccccctc gaggtgatca aggggggaag acatctatc ttctgcccact caaagaagaa 240
gtgcgacgag ctcgcccgcga agctggtcgc attgggcata aatggcgtgg cctactaccg 300
cggctttgac gtgtctgtca tcccgaccag cggcgatgtt gtctgtgtgt cgaccgatgc 360
tctcatgact ggctttaccg gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 420
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctccccca 480
ggatgtgtc tccaggactc aacgggggg caggactggc agggggaaagc caggcatcta 540
tagatttgtg gcaccgggg 559

<210> 126
<211> 475
<212> DNA
<213> Hepatitis C virus

<400> 126
tgtgatagac tgcaaacacgt gtgtcaactca gacagtcat ttcagcctt accctacatt 60
taccatttag acaaccacgc tcccccaagga tgctgtctcc aggactcaac gcccggggcag 120
gactggcagg ggaagccag gcatctatag atttggca ccggggggagc gcccctccgg 180
catgttcgac tcgtccgtcc tctgtgatgt ctatgacgcg ggctgtgtt ggtatgagct 240
cacgcccgcg gagactacag ttaggctacg agcgtacatg aacaccccg 300
gtgccaggac catcttgaat tttgggaggg cgtcttacg ggcttcaactc atatacatgc 360
ccactttta tccagacaa agcagagtgg ggagaacttt ctttacctgg tagcgtacca 420
agccaccgtg tgcgcttaggg ctcaagcccc tccccatcg tggaccaga tgtgg 475

<210> 127
<211> 390
<212> DNA
<213> Hepatitis C virus

<400> 127
tagatttgtg gcaccgggggg agcgccccctc cggcatgttc gactcgccg tcctctgtga 60
gtgctatgac gccccgtgtg ctggatgtga gtcacgccc gccgagacta cagttaggct 120
acgagcgtac atgaacaccc cggggcttcc cgtgtccag gaccatctt aatttggga 180
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tggggagaac ttcccttacc tggtagcgta ccaagccacc gtgtgcgcta gggctcaagc 300
ccctccccca tcgtgggacc agatgtggaa gtgtttgatc cgccttaaac ccaccctcca 360
tggccaaca cccctgtat acagactggg 390

<210> 128
<211> 155
<212> DNA
<213> Hepatitis C virus

<400> 128
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acaggctgcg tggcatagt gggcaggatc gtcttgcgtt ggaagccggc aattataacct 120
gacaggaggatc ttctctacca ggagttcgat gagat 155

<210> 129
<211> 56
<212> DNA
<213> Hepatitis C virus

<400> 129
ggctgctctg gccgcgtatt gcctgtcaac aggctgcgtg gtcatagtgg gcagga 56

<210> 130
<211> 625
<212> DNA
<213> Hepatitis C virus

<400> 130
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gggggggtgg gtggctgccc agctcgccgc cccccgtgcc gctactgcct ttgtgggtgc 120
tggcttagct ggcgcgcaca tcggcagcgt tggactgggg aaggctctcg tggacattct 180
tgcagggtat ggcgcggggc tggcgggagc tctttagtca ttcaagatca tgagcggta 240
ggtccccctcc acggaggacc tggtaaatct gctgcccgc atccctctcgc ctggagccct 300
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Qgcactacgtg cccgagagcg atgcagccgc cccgcgtact gccataactca gcagcctcac 480
Qtgtaaaccag ctccctgaggc gactgcata gttggataagc tcggagtgta ccactccatg 540
Rctccgggtcc tggctaaggg acatctgggatctggatatgc gaggtgctga gcgactttaa 600
Lgacctggctg aaagccaagc tcatg 625

W
~~Q~~<210> 131
~~Q~~<211> 623
~~W~~<212> DNA
~~Q~~<213> Hepatitis C virus

~~Q~~<400> 131
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ggcgtctcggt gacattcttg cagggtatgg cgcggggcgtg gcccggagctc ttgttagcatt 120
caagatcatg agcgggtgagg tccccccac 180
cctctcgccct ggagcccttg tagtcgggtt ggtctgcga gcaatactgc gccggcacgt 240
tggccgggc gaggggggcag tgcaatggat gaaccggcta atagcctcg cctcccccgg 300
gaaccatgtt tccccccacgc actacgtgcc ggagagcgat gcagccgccc gcttcactgc 360
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ggagtgtacc actccatgtc cccgttcctg gctaaggggac atctgggact ggatatgcga 480
gggtgctgagc gactttaaga cctggctgaa agccaagctc atgccacaac tgcctggat 540
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cactcgctgc cactgtggag ctg 623

<210> 132
<211> 678
<212> DNA
<213> Hepatitis C virus

<400> 132
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gatcatgagc ggtgagggtcc cctccacggc ggacctggc aatctgtgc ccgcacatcct 120
ctcgccctggc gccttgcgttgc aatggatgaa cccgcataata gccttcgcct cccggggaa 180
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ccatgtttcc cccacgcact acgtgccggc gaggcgtgc gcccggcg tcactgcct 300
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 tcgctgccac tgtggagctg agatcactgg acatgtcaaa aacgggacga tgaggatcgt 600
 cggtcttagg acctgcagga acatgtggag tggacgttc cccattaacg cctacaccac 660
 gggccccctgt actccccct 678

<210> 133
 <211> 436
 <212> DNA
 <213> Hepatitis C virus

<400> 133
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 ggtccccctcc acggaggacc tggtaatct gtcggccccc atcctctcgcc 120
 ttagtcgt gtggctcgac cagaatact gcgcggcac gttggcccg gcgagggggc 180
 agtgcaatgg atgaaccggc taatagcctt cgccctccgg gggAACATG tttccccac 240
 gcactacgtg ccggagagcgt atgcagccgc ccgcgtcact gccatactca gcagcctcac 300
 tggtaacccag ctccctgaggc gactgcatca gtggataagc tcggagtgtatccactccatg 360
 ctccgggtcc tggtaaaggg acatctggga ctggatatgc gaggtgtga gcgactttaa 420
 gacctggctg aaagcc 436


 <210> 134
 <211> 164
 <212> DNA
 <213> Hepatitis C virus


 <400> 134
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 gggggcagtgc caatggatga accggctaat agccttcgccc tcccggggga accatgtttc 120
 cccacgcac tacgtgccgg agagcgatgc agccggccgc gtca 164


 <210> 135
 <211> 496
 <212> DNA
 <213> Hepatitis C virus

<400> 135
 cgcctccgg gggAACATG tttccccac gcactacgtg ccggagagcgt atgcagccgc 60
 ccgcgtcact gccatactca gcggccctcac tggtaaccagg ctccctgaggc gactgcatca 120
 gtggataagc tggagtgta ccactccatg ctccgggtcc tggtaaaggg acatctggga 180
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 gacgatgagg atcgtcggtc ctggacactg caggaacatg tggagtggga cgttccccat 420
 taacgcctac accacggggcc cctgtactcc cttccctgca ccgaactata agttcgccgt 480
 gtggagggtg tctgca 496

<210> 136
 <211> 926
 <212> DNA
 <213> Hepatitis C virus

<400> 136
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 acccagctcc tgaggcgact gcatcagtgg ataagctgg agtgcgtaccac tccatgctcc 120
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 gagatcaactg gacatgtcaa aaacgggacg atgaggatcg tcggctctag gacctgcagg 360
 aacatgtgga gtgggacgtt cccattaac gcctacacca cggccccctg tactcccctt 420
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 aggccgggtgg gggacttcca ctacgtatcg ggtatgacta ctgacaatct taaatgccc 540
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 gccccccctt gcaagccctt gctgcggag gaggtatcat tcagagttagg actccacgag 660
 taccgggtgg ggtcgcaatt accttgcag cccgaaccgg acgtagccgt gttgacgtcc 720
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 acttgacaccg ccaaccatga ctccctgac gccgagctca tagaggctaa ctcctgtgg 900
 aggccaggaga tggcgccaa catcac 926

<210> 137
<211> 850
<212> DNA
<213> Hepatitis C virus

<400> 137
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 gtgttaccact ccatgctccg gttcctggct aaggacatc tggactggta tatgcgaggt 120
 gctgagcgac tttaagaccc ggtgaaagc caagctcatg ccacaactgc ctgggattcc 180
 ctttgcgtcc tggcagcgcg ggtatagggg ggtctggcga ggagacggca ttatgcacac 240
 tcgctgccac tggagactg agatcaactgg acatgtcaaa aacgggacga tgaggatcgt 300
 cggtcctagg acctgcagga acatgtggag tggacgttc cccattaacg cttacaccac 360
 gggccctgtt actcccttc ctgcgcgaa ctataagtt gcgtgtggta ggggtctgc 420
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 ctagccgtg ttgacgtcca tgctcaactga tccctcccat ataacagcag aggccggcgg 720
 gagaagggtt gcgagagggt caccccttc tatggccagc tcctcggtca gccagctgtc 780
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 gagggctaac 850

H
S
<210> 138
<211> 749
<212> DNA
<213> Hepatitis C virus

<400> 138
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 cgactttaag acctggctga aagccaaatc catgccacaa ctgcctggta ttcccttgc 180
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 aggactccac gacttcccg tggggtcgca attaccttc gggccgaac cggacgtac 660
 cgtgttgcacg tccatgtca ctgatccctc ccatataaca gcagaggcgg ccgggagaag 720
 gttggcgaga ggtcaccacc cttctatgg 749

<210> 139
<211> 257

<212> DNA

<213> Hepatitis C virus

<400> 139

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 agctgagatc actggacatg tcaaaaacgg gacgatgagg atcgctggtc ctaggacctg 180
 caggaacatg tggagtggga cgttccccat taacgcctac accacgggcc cctgtactcc 240
 cttccctgctg 257
 ccgaact

<210> 140

<211> 285

<212> DNA

<213> Hepatitis C virus

<400> 140

tgagatcaact ggacatgtca aaaacgggac gatgaggatc gtcggtccta ggacctgcag 60
 gaacatgtgg agtgggacgt tccccattaa cgcctacacc acggggccct gtactcccct 120
 tcctgcgccg aactataagt tcgcgtgtg gagggtgtct gcagaggaat acgtgagat 180
 aaggcgggtg ggggacttcc actacgtatc gggtatgact actgacaatc taaaatgccc 240
 gtgccagatc ccatcgcccg aattttcac agaattggac ggggt 285

Q

<210> 141

<211> 228

<212> DNA

<213> Hepatitis C virus

L

<400> 141

catagaggct aaccctctgt ggaggcagga gatgggcggc aacatcacca gggttgagtc 60
 agagaacaaa gtggtgattc tggactcctt cgatccgctt gtggcagagg aggatgagcg 120
 ggaggctccgtc gtacctgcag aaattctgcg gaagtctcgg agattcgcggc gggccctgcc 180
 cgtctggcg cggccggact acaaaaaaaa gctagtagag acgtggaa 228

Q

Q

<210> 142

<211> 273

<212> DNA

<213> Hepatitis C virus

<400> 142

ccatggctgc ccgctaccac ctccacggtc ccctcctgtg cctccgcctc ggaaaaaagcg 60
 tacgggtgtc ctcaccgaat caaccctatac tactgccttg gcccggctt ccacaaaaag 120
 ttttggcagc tcctcaactt ccggcattac gggcgacaat acgacaacat cctctgagcc 180
 cggcccttctt ggttgcggccc ccgactccga cgtttagtcc tattttcca tgccccccct 240
 ggagggggag cctggggatc cggatctcag cga 273

<210> 143

<211> 412

<212> DNA

<213> Hepatitis C virus

<400> 143

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 cgcactgagc aactcggtgc tacgccccatca caatctgtg tattccacca cttcacgcag 120
 tgcttgcacaa aggcagaaga aagtccatc tgacagactg caagttctgg acagccatta 180
 ccaggacgtg ctcaaggagg tcaaagcagc ggcgtcaaaa gtgaaggcta acttgctatc 240
 cgttagaggaa gtttgcagcc tgacgcccccc acattcagcc aaatccaagt ttggctatgg 300
 ggccaaagac gtccgttgcc atgcccggaaa ggccgttagcc cacatcaact ccgtgtggaa 360

agaccttctg gaagacagtg taacaccaat agacactacc atcatggcca ag

412

<210> 144

<211> 903

<212> DNA

<213> Hepatitis C virus

<400> 144

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 caactccgtg tgaaaagacc ttctggaaga cagttaaca ccaatagaca ctaccatcat 180
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 tgatacccg tggggact ccacagtac tgagagcgac atccgtacgg aggaggcaat 480
 ttaccaatgt tggacctgg acccccaagc ccgcgtggcc atcaagtccc tcactgagag 540
 gcttatgtt gggggccctc ttaccaattc aaggggggaa aactgcggct accgcagggt 600
 cccgcgcgagc ggcgtactga caactagctg tggtaaacacc ctcacttgct acatcaaggc 660
 cccggcagcc tggcgagccg cagggtctca gggactgcacc atgctcgctg tggcgacga 720
 cttagtcgtt atctgtgaaa gtgcgggggt ccaggaggac gggcgagcc tggagacctt 780
 cacggaggct atgaccaggactccgcccc cccggggac ccccccacaac cagaatacga 840
~~G~~tggagctt ataacatcat gtcctccaa cgtgtcagtc gcccacgcgacg ggcgtggaaa 900
~~G~~ag 903

~~G~~

~~G~~

<210> 145

<211> 600

<212> DNA

<213> Hepatitis C virus

<400> 145

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~~G~~cattctggaa gacagtgtaa cacaataga cactaccatc atggccaaga acgagggttt 180
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~~G~~gtgtatggaa agtcctacg gattccaata ctcaccagga cagcgggttg aattcctcg 360
~~G~~caaggcgtgg aagtccaaga agaccccgat ggggtctcg tatgataacc gctgtttga 420
~~G~~tcccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgaccc 480
~~G~~gaccccaa gcccgcgtgg ccatcaagtc ctcactgag aggtttatg ttggggccccc 540
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<210> 146

<211> 781

<212> DNA

<213> Hepatitis C virus

<400> 146

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 ctgcgttcag cctgagaagg ggggtcgtaa gccagctcg ttcattcgat tcccgaccc 120
 gggcggtgcgc gtgtgcgaga agatggccct gtacgacgtg gtttagcaagc tccccctggc 180
 cgtgtatggaa agtcctacg gattccaata ctcaccagga cagcgggttg aattcctcg 240
 gcaaggcgtgg aagtccaaga agaccccgat ggggtctcg tatgataacc gctgtttga 300
 ctcccacagtc actgagagcg acatccgtac ggaggaggca atttaccaat gttgtgaccc 360
 ggaccccaa gcccgcgtgg ccatcaagtc ctcactgag aggtttatg ttggggccccc 420
 tttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gggcgact 480
 gacaactagc tggtaaca ccctcaacttg ctacatcaag gcccggcagc cctgtcgagc 540
 cgcagggttc cagactgca ccatgctcg tggcgac gacttagtgc ttatctgtga 600

aagtgcgggg gtccaggagg acgcggcgag cctgagagcc ttcacggagg ctatgaccag 660
 gtactccgcc cccccccggg accccccaca accagaatac gacttggagc ttataacatc 720
 atgctcctcc aacgtgtcag tcgcccacga cgccgctgga aagagggtct actaccctac 780
 c 781

<210> 147
 <211> 382
 <212> DNA
 <213> Hepatitis C virus

<400> 147
 cgttatctgt gaaagtgcgg gggccagga ggacgcggcg agcctgagag cttcacgga 60
 ggctatgacc aggtactccg ccccccccg ggaccccca caaccagaat acgacttgg 120
 gcttataaca tcatgtctt ccaacgtgtc agtcgcccac gacggcgctg gaaagagggt 180
 ctactaccc acccgtgacc ctacaacccc cctcgcgaga gccgcgtggg agacagcaag 240
 acacactcca gtcaattcct ggctaggcaa cataatcatg tttgcacca cactgtggc 300
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 ggctctaacc tgtagatct ac 382

<210> 148
 <211> 268
 <212> DNA
 <213> Hepatitis C virus

<400> 148
 cgtgtcagtc gcccacgacg ggcgtggaaa gagggtctac taccttaccc gtgaccctac 60
 gaccccccctc gcgagagccg cgtgggagac agcaagacac actccagtca attcctggct 120
 aggcaacata atcatgtttt ccccccacact gttggcgagg atgatactga tgaccacattt 180
 ctttagcgtc ctcatagcca gggatcagct tgaacagggct cttaactgtg agatctacgg 240
 agcctgtac tccatagaac cactggat 268

<210> 149
 <211> 222
 <212> DNA
 <213> Hepatitis C virus

<400> 149
 actccatggc ctcagcgcac tttcaactcca cagttactct ccaggtgaaa tcaatagggt 60
 ggccgcacgc ctcagaaaaac ttggggtccc gcccttgca gctggagac accggggcccg 120
 gagcgtccgc gctaggcttc tgtccagagg aggcagggt gccatatgtg gcaagtacct 180
 cttcaactgg gcagtaagaa caaagctcaa actcaactcca at 222

<210> 150
 <211> 192
 <212> DNA
 <213> Hepatitis C virus

<400> 150
 ctctccaggt gaaatcaata gggtggccgc atgcctcaga aaacttgggg tcccgccctt 60
 gcgagctgg agacaccggg cccggagcgt ccgcgttagg ctctgtcca gaggaggcag 120
 ggctgccata tggcaagt acctttcaa ctggcagta agaacaaggc tcaaactcac 180
 tccaaatagcg gc 192

<210> 151
 <211> 10
 <212> DNA

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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: linker
      sequence

<400> 151
      gggccacgaa                                         10

<210> 152
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: linker
      sequence

<400> 152
      ttcgtggccc ctg                                         13

<210> 153
<211> 138
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pP6 vector
      sequence

<400> 153
      ctagccatgg ccgcaggggc cgccggccgca ctatgggta tccttaatta aagggccact 60
      ggggcccccc gtaccggcgt ccccgccgccc ggcgtgatca cccctaggaa ttaatttccc 120
      ggtgaccccg gggagct                                         138

<210> 154
<211> 128
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pB5 vector
      sequence

<400> 154
      catggccgca ggggcccggg ccgcactagt ggggatcctt aatcaaagg ccactggggc 60
      ccccgccgt ccccgccgccc ggcgtgatca cccctaggaa ttaatttccc ggtgaccccg 120
      gggagct                                         128

<210> 155
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

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55

<400> 155
gcgttggaa tcactacagg

20

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<210> 156
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 156
cacgatgcac gttgaagtg
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□□□□□□□□□□□□□□□